UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

Distr.
LIMITED
E/ECA/ENV/25
17 September 1985
Original: ENGLISH

ECONOMIC COMMISSION FOR AFRICA

Expert Consultations on Prevention of Encroachment on Arable Land in Africa

Addis Ababa, 16-20 September 1985

LC/NAIROBI

REPORT OF EXPERT CONSULTATIONS ON PREVENTION OF ENCROACHMENT ON ARABLE LAND IN AFRICA

A. PARTICIPATION AND ORGANIZATION OF WORK

1. The Expert Group Meeting on Encroachment on Arable Land in Africa was held from 16 to 20 September 1985 at the headquarters of the Economic Commission for Africa (ECA) in Addis Ababa. It was organized by the ECA in collaboration with the United Nations Environment Programme (UNEP), the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational Scientific and Cultural Organization (UNESCO).

2. The expert group meeting was held in the spirit of the Lagos Plan of Action, particularly chapters I and IX dealing with Food and Agriculture, and UNEP Governing Council decision GC.11/7 of May 1983 on the programme budget for 1984, part eight on the Regional Programme for Africa, dealing with, inter alia, the prevention of post harvest food losses and encroachment on arable land. The objective of the meeting was to review on-going activities and identify gaps where future activities should be directed.

3. The meeting was attended by experts from Ivory Coast, Nigeria, and Sudan. Apologies for absence were received from Ethiopia, Mali, Morocco, Mozambique, Tanzania, and Zimbabwe.

4. The following members of the United Nations system also attended: FAO, UNEP and UNESCO.

5. The following were elected as officers for the meeting:

Chairman: Mr. George Igugu
Federal Dept. of Forestry
No. 6 IJEH St.
P.M.B. 12613
Obalende, Lagos
Nigeria

Rapporteur: Mr. Bakan Kouakou
Ministers du Developpement Rural
B.D.V. 185
Abidjan

6. The Chairman requested that the ECA secretariat inform the meeting on the criteria used for the selection of the eight African experts with reference to the draft annotated agenda (E/ECA/ENV/PEALA/Inf.2). In reply, the secretariat pointed out that nine African countries were selected on a subregional basis, as well as on the degree of soil degradation (slight* or severe+):

(i) northern Africa ..... Morocco* and Sudan+
(ii) eastern Africa ..... Tanzania+ and Ethiopia+
(iii) southern Africa ..... Zimbabwe* and Mozambique+
(iv) western and central Africa ..... Nigeria*, Ivory Coast* and Mali+

B. AGENDA

7. The following agenda was adopted:

1. Opening of the meeting
2. Election of officers
3. Adoption of the agenda and organization of work
4. ECA's Progress Report on Inter-Agency Consultations, 1981-1985
5. Country reports by African experts
6. Global review of the problem by international experts
7. Review of on-going activities by the agencies of the United Nations system
8. Recommendations for future activities
9. Adoption of the report and closure of the meeting

C. PROCEEDINGS

Opening of the meeting (Agenda item 1)

8. A representative of the ECA Executive Secretary, Maurice Makramalla, Officer-in-Charge of the Commission opened the meeting. In his opening statement, he said that the present crisis in food production that had resulted in generalized food shortages and famine in the region, highlighted the importance that must be attached to issues dealing with the management of all arable lands in the region. He said that the loss of arable land due to human activity and poor development planning and land use management in all the sectors had become a serious problem in Africa. He emphasized that the problems of encroachment on arable lands fell squqrely within the framework of land use degradation and management in town and country planning for settlement location, natural resources development and the location of industry, in relation to their impacts on the area of land under cultivation and arimal husbandry.

9. The representative of the Executive Secretary continued by saying that land was a limited, virtually non-renewable resource and that the portion of it that was arable was even more limited.

10. It would, therefore, be useful, he said, to seriously consider issues relating to settlement schemes, particularly re-settlement schemes, taking into account their impact on the available agricultural land; natural resource development which could also pose the serious problem of reducing the area of farm lands if rehabilitation measures are not undertaken; and industrial location which could also be very problematic to agricultural land.

11. He reiterated that the experts were faced with complex problems, touching on all sectors of development, which needed very careful consideration if practical recommendations were to be made to member States, particularly those that were under serious pressure from the impact of drought and desertification. The experts, he said, were to review on-going activities and identify gaps that still existed in the realization of those activities and make recommendations for integrated programmes on methods for filling information gaps identified, the development of criteria and methodologies for assessing and monitoring changes in land use patterns in developing countries, and the building of an inventory of supporting institutional infrastructure in African countries for assessing and monitoring encroachment on arable land and to assess their adequacy or otherwise for satisfactorily achieving these needs.

ECA's Progress Report on Inter-Agency Consultations (item 4)

12. The representative from the ECA Secretariat presented document E/ECA/ENV/24 as a Progress report on Inter-Agency Consultations since 1981. He pointed out that the problem of encroachment on arable land in Africa was first examined jointly with that of post-harvest food losses by the FAO, UNEP, ECA, International Fund for Agricultural Development and the Organization of African Unity in response to the severity of the African food situation, in which increases in food production were not keeping pace with population growth. African Governments had adopted the Lagos Plan of Action for the implementation of the Monrovia Strategy for the Economic Recovery of Africa (1980) and also the African Food Plan drawn up by the FAO in 1980, both of which emphasized self-reliance and self-sufficiency in food production by the year 2000. He said that the first inter-agency consultations were held at ECA in April 1982 and at the second consultations held at FAO, Rome in September 1983, where the problems were dealt with separately, it was decided that ECA should organize this consultative meeting of experts from African governments, the United Nations system and organizations outside Africa to discuss the problem.

13. The ECA representative reviewed the land use situation in Africa and noted that Africa should not have any problem of encroachment on arable lands as only 23 per cent of the potentially cultivable land of 789 million hectares was under cultivation. But he then pointed out that the stensibly inexhaustible supply of arable land was currently being threatened by two main factors, soil degradation in existing prime agricultural land under cultivation as well as loss of existing and potential arable land to non-agricultural uses. Other minor factors limiting the availability of arable land were high population density and growth rates especially in small African countries; prolonged drought and water scarcity for irrigation in arid areas; the process of desertification eating up human settlements areas in the arid lands; deforestation and loss of soil properties under intensive shifting cultivation; natural calamities such as landslides, hurricane damage and flooding of lowlands and river valleys, and the prevalence of debilitating diseases such as sleeping sickness, river blindness, and the tse-tse fly in coastal lowlands and around man-made lakes of the great dams in Africa.

14. The representative of the secretariat dealt at length on the constraints on arable land use. Loss to non-agricultural uses involved the establishment of human settlements in urbanization municipal development, construction of transportation infrastructure, large dams and reservoirs, and recreaiion facilities. Also other development activities such as mining especially in open-cast mines, industrial siting and treatment plants for industrial waste products, resettlement schemes during prolonged drought, all these use up a fair amount of arable land for non-agricultural purposes.

15. It was pointed out that by far the most serious loss of arable land in the world is through soil degradation of existing agricultural lands, which accounts for 40-50 per cent of soil loss in the croplands of the USA, Europe and Australia. In the African situation, the main factors responsible for soil degradation and loss are overcultivation (intensive shifting cultivation without an adequate fallow period for soil recuperation); overgrazing due to excess cattle population beyond the carrying capacity of the arid lands; deforestation for fuelwoo energy with the removal of the protective cover on fragile tropical soils; desertification with the creeping of desert sands over farmland, rangelands and even over whole villages; soil erosion by wind and water; and inefficient irrigation schemes leading to salinization, alkalinization and waterlogging. The ECA representative stressed that the traditional practice of shifting cultivation for subsistence farming is environmentally sound for the tropical forests and savanna woodlands, providing an adequate fallow period is allowed. But under environmental stress due to high population density and non agricultural land use demands in the smaller African countries of west and eastern/southern Africa, the system breaks down and subsistence farmers can ill afford the high energy inputs (farm machinery maintenance and fuel) and chemical inputs (fertilizers, pesticides) of modern large-scale agriculture even when local co-operatives are formed to assist them.

16. Finally, he stressed that the prevention of encroachment on arable lands should be tackled by African governments through measures for improved soil management in which soil is considered as a more or less non-renewable natural resource which can be lost in a decade but which requires 100-300 years for the regeneration of an inch of living soil. He called the attention of the meeting to three documents made available, namely (i) the FAO World Soil Charter (1981), (ii) the UNEP World Soils Policy (1982) and the FAO/UNEP Guidelines for the Control of Soil Degradation (1983) which contain recommendations to national governments and international organizations to reduce soil degradation by sound ecological management for better soil productivity to improve the present food situation in Africa.

17. The discussion which followed this presentation by the ECA secretariat centerred among the following themes:

(a) What is potentially arable land? The experts agreed that it should include all land surface at present under natural vegetation which if removed would render the soil available for agricultural cultivation. This also includes natural grasslands for grazing, especially in the arid lands.

(b) The conflict between land users in dealing with the problem of encroachment on arable land. Several experts gave examples of migrating herdsmen (Fulani) degrading pastureland through overgrazing so that in areas where mixed-farming is practiced, a conflict arises between the farmers and the herdsmen. Another dimension to the problem raised was the effort of national forestry department workers to rehabilitate degraded lands through tree planting and other soil conservation measures as migrant cattle undermines their efforts. The experts agreed that in solving such conflicts, community participation and the use of extension workers should be encouraged in controlling overgrazing, in re-afforestation projects and in executing soil conservation measures on degraded communal lands under shifting cultivation.

(c) The expert from UNESCO pointed out that under its Man and Biasphere Programme (MAB) Biosphere Reserves consist of core areas conserved and protected to retain the genetic resources they contain as a reference point vis-a-vis a buffer zone that could serve for experiments related to land use. He stressed that soil conservation for the prevention of encroachment on arable land should be treated likewise through rational utilisation of a very scarce natural resources.

(d) The experts placed emphasis on the dissemination of information on soil degradation between African countries and international organizations through the establishment of focal points within the countries, updating and drawing of country maps to indicate encroachment on arable lands by urbanisation as well as by loss through soil degradation (see FAO World Soil Map 1964-1974), and the establishment of national land use survey and planning.

(e) The experts felt that there was need to search for alternatives to the traditional system of shifting cultivation and to deforestation. It was noted that African regional research organizations such as the International Institute for Tropical Agriculture (IITA) at Ibadan and the International Livestock Centre for Africa (ILCA) in Addis Ababa, both of which were invited to this meeting, have provided research results indicating that shifting cultivation can be replaced by minimum to no tillage cultivation supplemented by weeding and fodder cropping.

Country Reports by African Experts (Agenda item 5)

I. NIGERIA

REPORT ON THE PROBLEM OF ENCROACHMENT ON ARABLE LAND

18. The expert from Nigeria in his country report said that Nigeria has a total land area of approximately 92.4 million sq. ha with a population of 80 million people. The livestock population of about 58 million is mainly concentrated in the five northern states affected by desert encroachment in the Guinea and Sudan savanna zones. He said that at least 70% of the total land surface is cultivable and this exists mainly in the savanna regions which constitute 80% of the total land area. Only 10% represents reserved forest land but actual productive (commercial) forest is only 2%.

19. He stated that activities or factors which constitute encroachment on arable land include (a) natural factors such as desertification and drought and (b) factors which induce or accelerate soil degradation such as urbanisation, physical development, farming activities and deforestation.

20. Mechanisation of land preparation and construction of irrigation dams, though essential for development of agriculture, have been identified as some of the major causes of soil displacement and/or human resettlement and soil loss. Although the land use decree of 1978 tried to regulate land allocation particularly for agricultural production, the land use policy is not clearly defined and there is yet to be a land use plan.

21. He pointed out that a number of international organizations such as FAO, United Nations Sahelian Office, International Bank for Reconstruction and Development, IITA, have shown interest in one form or the other in solving the problem of desertification and soil erosion through assistance in projects operated at national level or through research activities. Efforts are minimal in relation to the size of the problems involv

22. The report recommends among other things, the institution of national and inter-regional bodies for generating and disseminating information as well as for working out programmes of action intended to combat the problems. An interdisciplinary approach is recommended, as isolated efforts have tended to emphasize areas of conflicts rather than linkages in land use.

Discussion

23. The experts made the following points in discussing the country report of the participant from Nigeria:

(a) On land use policy, it was explained that in Nigeria, the Federal Government decree of 1978 vested the ownership of all lands in the state governments who held the land in trust for the people. Whilst the Federal Government is responsible for formulating land use policies, the State Government does the implementation of such policies to regulate the use of the land. The Expert from UNESCO pointed out that the MAB programme was encouraging the setting up of subregional and national bodies such as the Institute of Tropical Ecology in Uganda for the study and applications of conservation measures, hence one of the recommendations of the expert from Nigeria to establish such a body for soil degradation was timely.

(b) On the encroachment of urbanization, the expert from Nigeria pointed out that since Nigeria attained independence, the growth of urban centres and regional capitals has been phenomenal, from 4 to 12 in 1967, and to 19 in 1976, excluding the new federal capital territory, 14 new airports had also been constructed, displacing farmers from arable lands.

(c) The problem of soil erosion in Nigeria has been examined in a FAO study in 1980 by Nigerian consultants. This was followed by the setting up of a Land Resources Department separate from the Forestry Department. The new department had been studying soil degradation in Anambra and Imo States where soil erosion gullies are about a hundred metres deep, impeding highway construction, causing huge landslides on arable lands and similar calamities. The experts agreed that the problem of soil degradation should be addressed from an integrated approach to environment and development for developing national plans of action for soil conservation.

(d) On co-ordination of activities to combat soil degradation, the expert from Nigeria informed the meeting of the work of the Nigerian Conservation Foundation (NCF) as a respected Non-Governmental Organization with international affiliations to World Weather Watch which approached the Government directly on environmental issues. Some of the activities of the NCF have relevance to the UNSO's project on the improvement and adaptation of cooking stoves in relation to the socio-cultural aspects of the user community, development of environmental consciousness in the public sector, and co-ordination of national environmental activities between government departments and non-governmental bodies in areas such as planting campaigns and World Environment Day.

(e) The experts agreed that, in order to assist African governments in developing national co-ordinating mechanisms, a Network on Soils Management in Africa should be established. The Network should involve government departments, universities, non-governmental organizations involved in water resources management, soil degradation and non-agricultural land uses of arable lands. The network could be a mechanism for the exchange of information on alternatives to shifting cultivation, such as alley-cropping for growing agricultural food crops between rows of fodder trees and legumi-² nous cover; on the effect of mechanisation of humid forest soils and on savanna woodland soils, and on the suitability of new tree species for shelterbelts in desertification control.

II. IVORY COAST

THE PREVENTION OF LAND DEGRADATION IN THE IVORY COAST

24. The expert from the Ivory Coast reported on the prevention of soil degradation in his country. He said that his country has an area of 3-2,365 square kilometres made up of cultivable land (76%), 10% of which is cultivated; forest lands (11%); national parks and reserves (6%), and uncultivable land (7%).

25. He continued by stating that the measures undertaken had the objective of reducing the rate of agricultural land "consumption" and to maintain their fertility so as to stablize agriculture. The measures, he said were also to improve on the productivity of the land. He said that action was being taken to effectively introduce a land law that would discourage anarchical occupation of lands and to encourage, at the same time, the stablization of land exploitation. A systematic inventory of land and water resources was being carried out and an agro-sylvo-pastoral plan was also being drawn up for the best uses of these resources.

26. The analysis of the results obtained by research and development, he said, showed that intensification of the area now under cultivation had increased production three fold. Mechanization had to be rationally managed to protect the land from the risks of erosion which increased with mechanized tilling. Action was also being taken to fight against bushfires. This included mass education sensibilization, fire protection rules and sanctions. There was also a more effective integration of agriculture and livestock by-products, agro-pastoral development and animal husbandry

under palm trees. Land in valley bottoms and flood plains which were abandoned because of health reasons (onchorcerciasis zone) or cultival beliefs, although good agricultural lands were now being developed. There was also the development of irrigation and the rationalization of forest exploitation and the application of a strict re-afforestation policy.

27. These actions, he concluded, had recently started so that it was not possible possible to evaluate their impact as to how they will improve agricultural production.

Discussion

28. In reply to a question concerning the type of shifting cultivation and multiple land use practices where both cash and food crops are sown together in the cleared lands, leaving the cash perennial after harvesting the annual food crop, the expert from the Ivory Coast replied that farmers producing oil palms, cocoa, or coffee, could sell them whilst the same land is used for food crops. Food crops, he explained, were usually planted during the first year of clearing the land and the cash crops are planted in the following year. The farmers in forest areas he said, usually gave priority to export cash crops while in the savanna they planted mainly food crops like yams, cassava and vegetables.

29. In reply to the question as to the extent of intensive farming and the type of soil management practices being carried out, the expert pointed out that there was the use of fertilizers and compost manure under this improved shifting cultivation.

30. Regarding the absence in his presentation of a pricing policy influencing land use practices, the expert from the Ivory Coast said that the matter was now being examined by the Government.

31. A point was raised about mechanization being one of the causes of desertification and that care should be taken as to its application on tropical soils.

32. It was noted that while a fair amount of land is still available for cultivation, the main problem in forest zones now is that of deforestation.

III. SUDAN

PREVENTION OF ENCROACHMENT ON ARABLE LAND IN THE SUDAN

33. The expert from the Sudan reported that prevention of encroachment on arable and forests land in Sudan started in 1917 and 1942 respectively by the Departments of Soil Conservation and Forestry, when the country was ruled by Britain.

34. Due to increasing population pressure and their increasing needs for food crops and cash crops, the systems of cultivation changed from the traditional shifting cultivation to the modern mechanised farming whereby an area of 1000-1500 acres hfd been robbed from the bush and allotted to a single merchant-farmer who uprooted the vegetation and burned everything to plant food or cash crops for only 3-7 years and then left the bare and exposed ground to further erosion and runoff.

35. In this way he said, more than 4 million acres of forest land has been changed as completely non-productive land in a period of 15 years.

36. Simultaneously, herders who practiced transhumance migration for fresh grass and water and to escape biting flies and mud hazards were forced and pushed continuously northwards to face their fate in marginal lands with limited vegetative cover and no surface water. The situation changedfor the worse when deep bores were dug to provide unlimited water supply in the marginal lands in the semi-desert areas.

37. Efforts were now being exerted for restocking and reafforestation but this could not cope with the very fast rate of destruction which is still going on.

38. In one region (Kordofan) 70,000 acres were distributed last year for mechanised farming, the only measure taken was that every farmer had to leave a tree belt 20 metres wide which divides his farm into 4 sections (6% of the1,000 acre farm had to be left under the bush). Every farmer in the mechanised areas had to restock a similar area in future with gum trees if the areaare already denuded.

39. Efforts were exerted with the help of the United Nations organizations such as UNDP, UNSO and FAO to restock the degraded areas and encourage community forests.

40. During the discussion that followed, two main issues were raised: that of the modes of shifting cultivation in Sudan and sand dune fixation for desertification control. The problem was the non-availability of data on encroachment by sand dunes in the Kordofan region and the lack of data on degradation of land around the villages.

41. The expert from the Sudan explained that shifting cultivation was still being practiced particularly for the production of food crops in the humid savanna woodlands. Concerning sand dune fixation, farmers were usually encouraged to surround their farms with a 20 metre wide area of natural vegetation or Acacia senegale. They had also introduced a method of enclosing dune-prone areas with trees and barbed wire but this proved to be very expensive. Degraded areas around villages was due mainly to shifting cultivation, fuelwood cutting, overgrazing with overstocking as a sign of wealth and influence.

42. Concerning jojoba trials, he informed the meeting that they were successful as orchard shrubs at first, but propagation for desertification had not yet succeeded. Trials with mesquite shrubs and Acacia species for sand dune fixation around villages and along rivers were more successful.

43. The meeting was also informed by the UNEP representative of a series of seminars that were being planned on sand dune fixation, using the experience that was gained in Sudan, Somalia, Mauritania as well as from the workshops in China and the USSR, for the establishment of a network of sand dune activities in Africa. The expert from the FAO pointed out that from experience in Russia sand dunes comprising schists can form good arable soils in 6-7 years after being fixed. But in the Sahara Desert, fixed or stablized sand dunes do not easily form good soil because the sand is quartz which does not easily decompose. Hence the economics of sand dune fixation should be of major concern in that sand dunes are stabilized to prevent moving sand engulfing highways, telecommunications lines and human settlements.

Global Review of the Problem by International Experts (Agenda item 6)

I. CULTIVATING CLIMATICALLY MARGINAL LANDS: DROUGHT FOLLOWS THE PLOUGH

by

Michael H. Glantz (UNEP Consultant)

44. As arid and semi-arid lands marginal to agricultural production become increasingly put under the plow, the probability that those activities will be adversely affected by drought (and bring about desertification) will increase. Thus, in the future we will be hearing more about droughts than in the past not nece-sarily because preciptation patterns in those areas will have changed as a result of these agricultural practices, but because the newly imposed activities will require (in the long-term) a greater water supply than such arid and semi-arid lands can provide.

45. This report provides specific examples from North-east Brazil, the West African Sahel, Kenya and the USA Great Plains. It also discusses the problems associated with different views about what drought is about, what drought does in terms of its societal and environmental effects. A summary of factors categorized as "push" and "pull" factors provides some reason for the encroachment of human activities onto marginally arable land and on rangelands.

46. Using the data provided in the case studies, it is concluded that, given the rainfall statistics of these marginal areas, the probability of occurrence of meteorological and perhaps agricultural drought can be estimated. Assuming that the historical climate characteristics of a region have not changed overtime (about which there is much application) and are therefore applicable to the future, one can determine the levels of risk that would accompany different human activities in the climatically marginal areas.

Discussion

47. The chairman of the meeting thanked the expert for the comprehensiveness of the paper and for the new insight the paper has provided into the concept of "Drought follows the plough".

48. Commenting on the role of mechanization, the expert explained that mechanization could play both a negative and a positive role in agricultural output, but that this paper stressed the negative aspect because other experts have only look at the positive side of the issue.

49. The representative of the ECA secretariat said that the cultural aspect of drought should have been stressed. The expert agreed that the cultural considerations should be addressed by the meeting.

50. One expert wanted to know what role if any, did the present space technology play in the African changing climate? It was then observed that space technology perhaps play a very small part in the new changing patterns of the world or African climate.

51. On the issue of the statement "Drought follows the Plough", the expert explained that it would have been more appropriate to say "agricultural drought follows the plow" because this implies that agricultural activities in marginal areas can heighten the risk to environmental degradation during periods of moisture stress.

(Agenda item 6 continued)

II. PROCESSES OF LAND DEGRADATION AND PERSPECTIVE OF PREVENTION OF ENCROACHMENT ON ARABLE LANDS IN AFRICA

by

T. G. Boyadgiev (FAO)

52. The processes leading to land degradation and desertification considered in this paper are: water action, wind action, salinization, animal pressure and population pressure on the land. In lddition, the land status on which the natural and induced processes act, is also taken into consideration.

53. African countries have been grouped according to their climatic conditions in the following way:

(a) Dry countries in which the zones without a growing period is more than 80% of the total land area;

(b) Intermediate or sub-humid countries in which the zones without a growing period occur on 0.1% and 50% of the total land and

(c) Humid countries in which the zones without a growing period do not exist.

54. The interpretation of the data concerning the processes of degradation and the data concerning the interrelationships between the arable land, permanent pastures, forest and woodland, and other lands have been made according to this grouping.

55. It was found that the effects of degradation processes change from one group of countries to another and the inherent susceptibility of the land to degradation is influenced to different degrees by social activities within the various countries. Land degradation is the result of the interaction of natural processes and of processes due to human and animal pressures. But only through man's intervention can land degradation be slowed down and stopped. In order to increase the efficiency of the man's interventions, the decision makers must pay attention to the natural conditions and the processes that lead to land degradation.

56. The interpreted data demonstrate that encroachment on arable land is clearly a part of environmental degradation.

Discussion

57. The main discussion area was on the ommission of a number of African countries from the lists given of countries affected in various ways (from slight moderate, severe to very severe) by each of the five processes of land degradation and desertification which are favouring encroachment on arable lands. Several experts

pointed out that countries such as Burundi, Nigeria, Rwanda and Somalia are severely affected by more than one of the factors, wind erosion, water erosion, salinization, animal pressure and population pressure. It was noted that Nigeria was grouped in the humid zones because the zones without growing periods do not exist even though above latitude 12°N in Nigeria, aridlands with sand dunes in a vast treeless landscape were quite common.

58. The experts expressed the view that the data showing that the carrying capacity of the land for cattle in the three major bioclimatic grouping in Africa identified by the FAO Expert, exceeded the desirable limits, would have more significance if such data was first done on a country basis and secondly according to the different ecological/vegetation zones in each African country.

Review of On-going Activities of the United Nations (Agenda item 7)

I. UNESCO: REFLECTIONS ON THE PREVENTION OF ENCROACHMENT ON ARABLE LANDS IN AFRICA

59. The expert from UNESCO said that overcropping depleted the nutrients in circulation which cannot be further replenished by natural processes or by the addition of fertilizers. Pastures in most parts of the Africa region are grazed so heavily that palatable species can no more sustain themselves. Harvested organisms in the fragile ecosystems are depleted beyond optimal sustainable yield. The only land surface left for meaningful agriculture is only 16% of the continent's entire size. The system is no longer efficient, it is, rather, on a down hill process of ecological degradation.

60. He emphasized that since the trend was precipitated by man, in a system in which he himself is centrally enmeshed in an intricate ecological disaster, the process of change can only come through an ecological therapy also involving man. All the salient parameters of land degradation have to be diagnosed in their intricate inter-relationships; and the chances of survival carefully and critically appraised before any reliable treatment can be offered.

61. The expert said that UNESCO's Man and the Biosphere (MAB) programme was collaborating with United Nations agencies (FAO, UNSO) and with non-governmental organizations - International Union for Conservation of Nature and International Council of Scientific Unions, who possess the knowledge, the experience and the expertise as well as the tools to participate in the treatment of saving Africa's arable lands. He said that MAB had a network system of pilot projects on a regional and global level and about 40 National Committees in Africa which give their priorities for action for the establishment of biosphere reserves and for environmental training through three month courses run at various international centres such as Dresden, Montpellier. Finally, he gave details of UNESCO's MAB field project - Integrated Project on Arid Lands (IPAL) in Tunisia and Northern Kenya, as well as the humid tropical forests pilot projects at Tai Reserve (Ivory Coast), Omo Forest (Nigeria), Luki (Zaire) and so on.

II. UNEP ACTIVITIES ON PREVENTION OF ENCROACHMENT ON ARABLE LANDS

62. On behalf of the Executive Director, the representative of UNEP expressed the support of his organization for the meeting and thanked ECA for convening it. He noted that UNEP attaches great importance to the problem of encroachment on arable land which is a very serious one and needs to be understood and dealt with better. He went on to observe that desertification and the problem of encroachment on arable land are entertwined if not the same and that they are both developmental and environmental problems.

63. Referring to the findings of the general assessment on progress on implementation of the Plan of Action to Combat Desertification, conducted by UNEP in 1983/84, he said that the global threat of desertification, far from diminishing, has grown over the past seven years since the United Nations Conference on Desertification. He went on to inform the meeting about UNEP's activities relating to encroachment on arable lands being carried out under different programmes such as (a) desertification control (b) soils and (c) environmental monitoring programmes.

64. The UNEP representative described in detail some major assistance activities including training, formulation of national plans and programmes to combat desertification and implementation of projects in various aspects of desertification control such as sand dune fixation, afforestation, rangeland management and soil conservation, being carried out under desertification control programme. In addition to these activities, UNEP is implementing programmes on soils, and within the Global Environmental Monitoring (GEMS) service under which many activities of direct relevance to the prevention of encroachment on arable land are carried out.

65. The representative of UNEP concluded his statement by noting that many of the activities described are carried out in co-operation and collaboration with other United Nations organizations and agencies including the regional commissions. He stressed the necessity to involve NGOs in efforts to combat desertification and encroachment on arable lands and pledged UNEP's continued support within the limits of available resources for activities aimed at prevention of encroachment on arable land.

III. FAO: Review of On-going activities

66. (a) Activities of the Soil Resources, Management and Conservation Services of FAO and Water Development Division are linked with the theme of ECA expert consultation on encroachment on arable land. In this connection the expert gave a brief review of activities of the Soil Resources Management and Preservation Services of the Land and Water Development Division of the FAO. He said that the activities are carried out in collaboration with other United Nations agencies and country specialists.

(b) Activity at the global level

(i) Soil Map of the World: 1:5 M scale (1964 to 1974)

- need for updating the map now, hence the current activity is improving the legend;

- computerising and digitizing of the new information at 1:1 M.scale,
- obtaining this information at the national level, but not to publish a new map.

(ii) Map of Desertification Control

(iii) World Soil Charter

already mentioned in his report

(c) Activities concerning developing countries

(i) Agro-Ecological Zones (map at 1:10 M and report)
(ii) Potential Population Supporting Capacities (map at 1:10 M and report)
(iii) Soil Degradation in Africa north of the Equator, (map at 1:5 M and report)

(d) Methodologies and Guidelines on:

(i) Agro-ecological zones
(ii) Potential population supporting capacity
(iii) Land use planning
(iv) Assessing soil degradation
(v) Assessing and mapping of desertification
(vi) Land suitability for rainfed agriculture
(vii) Land suitability for irrigation

(e) Field work (country and regional agricultural development projects) UNDP/FAO projects or Donor countries/FAO projects in the following domains.

(i) Creation of soil services
(ii) Soil inventory and mapping
(iii) Equipment for soils laboratories
(iv) Land evaluation
(v) Soil conservation
(vi) Soil fertility and use of fertilizers
(vii) Reclamation of saline soils
(viii) Training programmes (separately or included in the above activities)

(f) Technical co-operation projects (for the urgent solving of a specific problem)

Similar activities are carried out by all other divisions and services of FAO.

Discussions on Activities of the United Nations

67. The chairman observed that there is a need to establish a working relationship between the UNESCO - MAB programme and the agricultists. He said that since MAB was concerned with the proper management of the ecosystems and whereas the interest of the agriculturalists was on emphasis for greater agricultural output, a$_s$ was noted from the experience of his country - Nigeria. The agriculturists should work together

with the foresters, who are mainly concerned with conservation, in sharing information and collaborating to deal with the problem of encroachment on arable land to prevent soil degradation and to promote the protection of the environment.

68. A member of the ECA secretariat wanted clarification on the relationship of the UNESCO projects listed and problem of encroachment on arable land. The UNESCO expert noted that the pilot projects such as the Integrated Project on Arid lands (IPAL) and others under the MAB programmes are concerned with human activities as these activities effect the ecosystems. Therefore, most of the funded projects on the impact of human activities on various ecosystems were directly concerned with the prevention of degradational and encroachment on arable lands in Africa because of the aim of checking adverse impacts on the land. He further stated that a new project of educational character similar to IPAL project was being planned for the South African Development Coordination Committee countries by UNESCO and UNEP.

69. The experts agreed that the problem of encroachment on arable lands in Africa should be approached in a multidisciplinary manner involving the incorporation of environmental concerns for land and soil conservation into the development processes of cultivation of arable lands, improvement of soils and better water management for increased food production in Africa. The experts noted that environmental problems have to reach crisis level before governments can give them the priority they deserve for incorporation into national development planning, as it is politically expedient to take the short-term gains by disregarding environmental measures as against the long-term costs and benefits of incorporating environmental concerns into development activities.

D. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

70. The expert consultations on the prevention on encroachment of arable land in Africa has proved that the problem is very complex, the solution of which requires a multidisciplinary approach. The experts noted the specificity of encroachment of arable in the dry and humid conditions expressed by the intensity of the various processes and by the efficiency for reclamation. It was recognized that the data does not exist to quantify encroachment on arable land. In summary, the problem was diagnosed as follows:

(a) Status of potentially arable land: In spite of the euphoristic situation that only 23 per cent of potentially available arable land in Africa is now under cultivation in the continent, the situation of encroachment on arable land in

individual African countries calls for a comprehensive land use planning as most of the prime agricultural land has been used up, especially in the smaller African countries.

(b) Conflict between farmers, herdsmen and foresters: The experts agreed that potentially available arable land should include all land now under natural vegetation cover such as forests, grasslands which if removed, can render the land available for agricultural purposes. As such, they appreciated the conflicts and tensions existing between farmers, herdsmen - especially nomadic cattle grazers and foresters whose main concern is conservation.

(c) Non-agricultural land uses: Another conflict realised in the land use situation in Africa, is that involving the use of the land for non-agricultural purposes. Most African Governments hold the land in trust for the people and they acquire land for urbanisation, for developing transport and communications networks (highways, electric pylons, airports), for industrial complexes, for large dams and so on. All of these involve the use of prime agricultural land in valleys and plains, hence development appears to clash with environmental concerns because subsistence farmers are then forced to use marginal lands.

(d) Causes of soil degradation: The experts agreed that the main causes of encroachment on arable land are factors resulting in soil degradation in existing prime agricultural land such as, soil erosion from wind and water; intensive shifting cultivation without adequate fallow due to human population pressure; mechanisation on unsuitable tropical soils; overgrazing and overstocking beyond the carrying capacity of aridlands; deforestation and removal of vegetation cover for fuelwood; creeping of the desert sands over farmland and human settlements and inefficient irrigation practices leading to salinization and waterlogging.

(e) Alternatives to shifting cultivation: The experts noted that agricultural research work in the regional tropical institutions was providing better alternatives to the traditional system of shifting cultivation in forested lands. In several instances, the natural forest vegetation is replaced by cash crop trees (oil palm, coffee, cacao, gum arabic) during the 3-4 year period of traditional cropping for food crops, so that during fallowing, the soil is never exposed for any length of time to water and wind erosion.

(f) Modern agricultural techniques: The experts noted that there is desire by most African governments to increase rapidly their levels of food production, which can only be achieved through mechanisation. It was noted that intensive modern agriculture involving heavy farm machinery and the use of chemical inputs such as fertilisers, pesticides and herbicides was more suitable for tropical soils in savanna woodlands and in river valleys, but not so good for tropical forest soils whose mineral content and thinness are in dynamic equilibrium with the standing forest cover. Experiences in African countries indicate that farm mechanisation is successful for cropping annual and biennial food crops such as cereals suitable to sub-humid savanna climate.

(g) Sand dune fixation: The experts agreed that the problems of encroachment on arable land was intricately linked with the processes of desertification especially at the initial stage of dust storms with loss of the top soils of arable lands by wind erosion, followed by massive sand dune movements engulfing farmlands and villages. Hence more emphasis should be put on sand dune stabilization and fixation by physical means as well as by using suitable plant species of grasses and desert shrubs such as mesquite.

RECOMMENDATIONS

72. To prevent the encroachment on arable lands in Africa, the Expert Consultation recommended that:

At the national level

(a) Promote the dissemination and exchange of information on soil degradation control methods; on non-agricultural land use; on improvements in mechanised farming systems, methods and techniques; on alternatives to shifting cultivation and on sand dune stabilization techniques.

(b) Carry out national land use survey for an inventory of land use practices and for monitoring soil degradation in existing arable lands in order to improve on land use planning; updating of land use and soil maps of the country and developing better land use and soils policy.

(c) Promote research work for the improvement of traditional shifting cultivation and of heavy farm mechanization and chemical inputs into tropical forested and savanna grasslands soils, especially on marginal lands, and the results of such research should be disseminated by local extension workers and through publications and newsletters.

(d) Establish national coordinating bodies involving government departments, local non-governmental organizations and parastatal bodies, universities, research institutions involved in land, water and soil resources improvement activities which are related to the problems of encroachment on arable land. Such co-ordinating bodies in African countries would be the nucleus for a regional network for Soil Management in Africa.

(e) Encourage and develop national programmes and pilot projects in selected areas for reafforestation of denuded land, for monitoring of encroachment on arable lands and for soil degradation and for stabilization of sand dunes in the arid land areas, with or without international assistance. Such development activities should be integrated into the medium-term national development planning budget of the country for effective execution.

(f) Examine the provisions of the FAO World Soil Charter 1981, the UNEP World Soils Policy (1982) and the FAO/UNEP Guidelines for the Control of Soil Degradation (1983), in order to develop a National Soils and Land Use Policy.

(g) Examine their land tenure systems, marketing and pricing systems legislative, institutional and administrative machineries for land use planning, soil and water resources management in order to remove obstacles to achieving the long-term goal of sustainable food production through self-reliant agricultural practices for increasing productivity without soil losses and degradation.

At the international level:

(a) The United Nations system should provide adequate technical assistance to African countries, at their request, to tackle the problems associated with encroachment on arable lands, by developing national plans of action, programmes and projects for better soil management and land use practices.

(b) International organizations and donor countries should assist in the development of a regional network for woil conservation in Africa, using as the basis the national coordinating mechanisms to be developed within each African country for the prevention of encroachment on arable lands.

(c) The role of international and national non-governmental organizations (NGOs) in developing activities related to the solution of the problem of encroachment on arable lands, should be encouraged by governments and all concerned, in view of their demonstrated successes in implementing small-scale and effective national projects on various development issues.

(d) The United Nations system in co-operation with national governments should promote training programmes and publications on soil, water and land degradation, especially within the context of developing a series of regional networks in Africa for solving problems of sand dune stablization, reafforestation, improvement of pastoral land, river and lake basin development and so on.

(e) International organizations and donor countries having space technology should assist African governments to monitor encroachment on arable lands in its various forms and make available satellite imageries and related data and techniques for the analyses and interpretation of trends and impacts on development.